

# GPSMAP® 640

Weather and XM Satellite Radio Supplement



  
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This manual includes weather and XM® satellite radio information for the GPSMAP® 640.

### **WARNING**

See the *Important Safety and Product Information* guide in the product box for product warnings and other important information.

The weather information provided through this product is subject to service interruptions and may contain errors, inaccuracies or outdated information, and consequently should not be relied upon exclusively. Always use common sense while driving or navigating, and check alternate weather information sources prior to making safety-related decisions. You acknowledge and agree that you shall be solely responsible for use of the weather information and all decisions taken with respect to driving or navigating in weather. Garmin will not be responsible for any consequences of using the weather data.

## Equipment Requirements: XM

In order to use XM WX Satellite Weather® you must have a Garmin® XM satellite weather receiver. To use XM Satellite Radio, you must have a Garmin XM satellite radio receiver. Go to [www.garmin.com/xm](http://www.garmin.com/xm) for more information. To connect the XM antenna and receiver and for subscription instructions, refer to the instructions for your XM equipment.

## Simulator Mode

Simulator mode provides live weather data if your GPSMAP 640 is connected to the required equipment described above and you have a paid XM subscription. Otherwise, simulator mode provides simulated weather.

## Contact Garmin

Contact Garmin Product Support if you have any questions while using your GPSMAP 640. In the USA, go to [www.garmin.com/support](http://www.garmin.com/support), or contact Garmin USA by phone at (913) 397.8200 or (800) 800.1020.

In the UK, contact Garmin (Europe) Ltd. by phone at 0808 2380000.

In Europe, go to [www.garmin.com/support](http://www.garmin.com/support) and click **Contact Support** for in-country support information, or contact Garmin (Europe) Ltd. by phone at +44 (0) 870.8501241.

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## Marine Mode: Using XM WX Weather and Audio

To use XM WX Satellite Weather on your GPSMAP 640, you must connect a Garmin GXM 40 XM antenna and activate an XM WX weather subscription. To use XM Radio, you must connect a Garmin GXM 40 XM antenna and activate an XM WX Radio subscription.

### Notes:

- XM service is available only in the lower 48 United States and southern Canada.
- You must purchase and activate your XM service before you can use the XM features.

### XM WX Satellite Weather

A Garmin XM satellite weather receiver and antenna receives XM WX Satellite Weather data and shows it on the GPSMAP 640. The weather data for each feature comes from reputable weather data centers such as the National Weather Service and the Hydrometeorological Prediction Center. For more information, go to the XM WX Satellite Weather Web site at [www.xmwxweather.com](http://www.xmwxweather.com).

### Weather Data Broadcasts

Satellite weather data is broadcast at set intervals. For example, XM weather radar data is broadcast at five-minute intervals. When the Garmin receiver is turned on, or when a new feature is selected, the receiver has to receive new data before it can be shown. You might experience a delay before weather data or a new feature appears on the chart.

**NOTE:** Any weather feature can change in appearance or interpretation if the source that provides the information changes.

### Viewing Precipitation Information

The Precipitation screen shows radar weather, storm cells, lighting strikes, and hurricane warnings. Precipitation is indicated ranging from very light rain and snow, up to strong thunderstorms, in varying shades and colors. The time stamp in the upper-left corner of the screen indicates the elapsed time since the weather data provider last updated the information. Precipitation is shown either independently or with a variety of other weather information.

From the Home screen, select **Weather > Precipitation**.

### Showing an Animated Radar Loop

You can view precipitation information as an image of the latest update or as an animated loop of the latest updates.

From the Home screen, select **Weather > Precipitation > Menu > NEXRAD Loop > On**.

### Showing Cloud Cover

From the Home screen, select **Weather > Precipitation > Menu > Cloud Cover > Show**.

### Changing from One Weather Chart to a Different Weather Chart

1. From the Home screen, select **Weather**.
2. Select a weather chart.

3. Select **Menu** > **Change Weather**.
4. Select a different weather chart.

## Storm Cell and Lightning Information

Storm cell icons ① on the Precipitation screen indicate both the present position of a storm and the projected path of that storm in the immediate future.

Red cones appear with a storm cell icon, and the widest part of each cone points in the direction of the projected path of the storm cell. The red lines in each cone indicate where the storm will most likely be in the near future. Each line represents 15 minutes.

Lightning strikes are represented by lightning bolt icons ②. Lightning appears on the Precipitation screen if strikes were detected within the last seven minutes. The ground-based lightning detection network detects cloud-to-ground lightning only.



## Hurricane Information





The Precipitation screen can show the present position of a hurricane ①, a tropical storm, or a tropical depression. A red line stemming from a hurricane icon indicates the projected path ② of the hurricane. Darkened dots on the red line indicate the projected location of the hurricane in 12-hour intervals, as received from the weather data provider.



## Weather Warnings and Weather Bulletins

When a marine weather warning or weather bulletin is issued, shading ① indicates the area to which the warning or bulletin applies. To view information about the warning or bulletin, select the shaded area. The cyan lines ② on the chart indicate the boundaries of the warning or bulletin. Weather bulletins may consist of either weather watches or weather advisories.



Color		Description
	Red	Marine Warning (on water) Tornado Warning (on land)
	Yellow	Severe Storm Warning (land only)
	Light Blue	Flash Flood Warning (land only)
	Blue	Flood Warning (land only)

## Forecast Information

The Forecast screen shows weather conditions, including fronts, pressure centers, sea surface pressure, and city forecasts.

### Viewing Present Forecast Information

From the Home screen, select **Weather** > **Forecast**.

### Viewing Forecast Information for Another Time Period

- From the Home screen, select **Weather** > **Forecast**.
- Complete an action:
  - Select **Next Forecast** to view the forecast weather for the next 12 hours, and select **Next Forecast** again to view forecasts for the next 24, 36, and 48 hours, in 12-hour increments.
  - Select **Previous Forecast** to view the forecast weather for the previous 12 hours, and select **Previous Forecast** again to view forecasts for the previous 24, 36, and 48 hours, in 12-hour increments.

### Viewing a Coastal Forecast or an Offshore Forecast

- From the Home screen, select **Weather** > **Forecast**.
- Pan the chart to an offshore location.
- Select an offshore location.

The **Coastal Forecast** or **Offshore Forecast** options appear when forecast information is available.

- Select **Coastal Forecast** or **Offshore Forecast**.

## Weather Fronts and Pressure Centers: Surface Analysis Weather Maps

Weather fronts appear as lines that indicate the leading edge of an air mass.

Front Symbol	Description
	Cold front
	Warm front
	Stationary front
	Occluded front
	Trough

Pressure-center symbols often appear near weather fronts.

Pressure-Center Symbol	Description
	Indicates a low-pressure center. A low-pressure center is an area where the measured pressure is lowest relative to the surrounding area. Moving away from a low-pressure center in any horizontal direction results in increased pressure. Winds flow counterclockwise around low-pressure centers in the northern hemispheres.
	Indicates a high-pressure center. A high-pressure center is an area where the measured pressure is highest relative to the surrounding area. Moving away from a high-pressure center in any horizontal direction results in decreased pressure. Winds flow clockwise around high-pressure centers in the northern hemispheres.

## City Forecasts

City forecasts appear as weather symbols as defined by the Weather Symbol Table. The forecast is viewed in 12-hour increments for the next 48 hours.



## Weather Symbol Table

Symbol	Weather	Symbol	Weather
	Fair (sunny, hot, clear)		Rain (drizzle, sleet, showers)
	Partly Cloudy		Cloudy



Symbol	Weather	Symbol	Weather
	Thunderstorms		Snow (snow showers, flurries, blizzard, blowing snow, sleet, freezing rain, freezing drizzle)
	Foggy		Smoke (dusty, hazy)
	Windy		

## Viewing Sea Conditions

The Sea Conditions screen shows information about surface conditions, including winds, wave height, wave period, and wave direction.

From the Home screen, select **Weather > Sea Conditions**.

### Surface Winds

Surface wind vectors appear on the Sea Conditions screen using wind barbs that indicate the direction from which the wind is blowing. A wind barb is a circle with a tail. The line or flag attached to the tail of the wind barb indicates the wind speed. A short line represents 5 knots, a long line represents 10 knots, and triangle represents 50 knots.

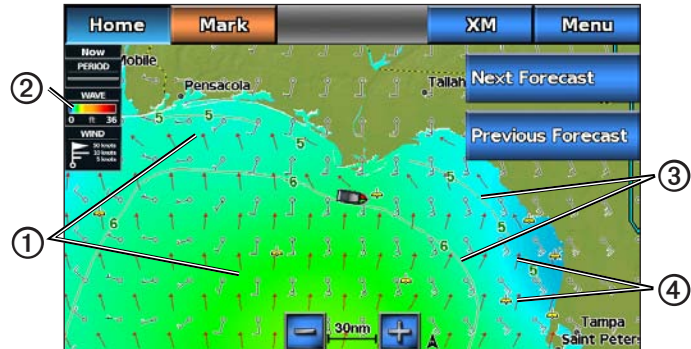
Wind Barb	Wind Speed	Wind Direction	Wind Barb	Wind Speed	Wind Direction
	Calm			20 knots	

	5 knots			50 knots	
	10 knots			65 knots	
	15 knots				

### Wave Height, Wave Period, and Wave Direction

Wave heights for an area appear as variations in color. Different colors indicate different wave heights ①, as shown in the legend ② on the left of the screen.

The wave period indicates the time (in seconds) between successive waves. Wave period lines ③ indicate areas that have the same wave period. Wave directions appear on the chart using red arrows ④. The direction of each arrow pointer indicates the direction in which a wave is moving.



## Viewing Forecast Sea Conditions Information for Another Time Period

1. From the Home screen, select **Weather > Sea Conditions**.
2. Complete an action:
  - Select **Next Forecast** to view the forecast visibility for the next 12 hours, and select **Next Forecast** again to view forecasts for the next 24 and 36 hours, in 12-hour increments.
  - Select **Previous Forecast** to view the forecast visibility for the previous 12 hours, and select **Previous Forecast** again to view forecasts for the previous 24 and 36 hours, in 12-hour increments.

## Viewing Fishing Information

The Fishing screen shows present water temperature, present surface pressure conditions, and fishing forecasts.

From the Home screen, select **Weather > Fishing**.

## Surface Pressure and Water Temperature Data

Surface-pressure information appears using pressure isobars and pressure centers. Isobars ① connect points of equal pressure. Pressure readings can help to determine weather and wind conditions. High-pressure areas are generally associated with fair weather. Low-pressure areas are generally associated with clouds and the chance of precipitation. Isobars packed closely together show a strong pressure gradient. Strong pressure gradients are associated with areas of stronger winds.



Pressure units are shown in millibars (mb), inches of Mercury (inHg), or hectopascals (hPa).

Colored shading ②, as defined by the legend ③ in the upper-left corner of the display, indicates the surface temperature of the water.

## Forecasting Fish Location

You can show areas that contain optimal weather conditions for specific species of fish.

1. From the Home screen, select **Weather > Fishing > Menu > Fish Species**.
2. Select a species of fish to display optimal fishing areas for that species.
3. Repeat step 2 to show areas with optimal weather conditions for additional species of fish.

Shaded areas indicate optimal fishing areas. If you have selected more than one species of fish, select a shaded area to view the fish species that are included in the shaded area.



## Visibility Information

Visibility is the forecast maximum horizontal distance that can be seen at the surface, as shown in the legend ① on the left of the screen. Variations in the visibility shading ② show the forecast change in surface visibility.



## Viewing Visibility Information

From the Home screen, select **Weather > Visibility**.


## Viewing Forecast Visibility Information for Another Time Period

1. From the Home screen, select **Weather > Visibility**.
2. Complete an action:
  - Select **Next Forecast** to view the forecast visibility for the next 12 hours, and select **Next Forecast** again to view forecasts for the next 24 and 36 hours, in 12-hour increments.

- Select **Previous Forecast** to view the forecast visibility for the previous 12 hours, and select **Previous Forecast** again to view forecasts for the previous 24 and 36 hours, in 12-hour increments.

## Viewing Buoy Reports

Report readings are taken from buoys and coastal observation stations. These readings are used to determine air temperature, dew point, water temperature, tide, wave height and period, wind direction and speed, visibility, and barometric pressure.

1. From the Home screen, select **Weather > Forecast**.
2. Select a buoy .
3. Select **Review > Buoy**. (**Review** does not appear if the cursor is not near an object. If the cursor is near only one object, the name of the buoy appears.)

## Viewing Local Weather Information

Forecast information appears when an area near a buoy is selected.

1. From the Home screen, select **Weather > Forecast**.
2. Complete an action:
  - Touch a location on the chart.
  - Touch and drag the screen to pan to a new location. Touch a location on the chart.
3. Select **Local Weather**.

4. Complete an action:
  - Select **Current Cond.** to view present weather conditions from a local weather service.
  - Select **Forecast** to view a local weather forecast.
  - Select **Sea Surface** to view surface wind and barometric pressure information.
  - Select **Marine Bulletin** to view wind and wave information.

## Creating a Waypoint on the Forecast Screen

1. From the Home screen, select **Weather > Forecast**.
2. Complete an action:
  - Touch a location on the chart.
  - Touch and drag the screen to pan to a new location. Touch a location on the chart.
3. Select **Create Waypoint**.
4. If you want to name the waypoint or provide information about it, select the waypoint on the right side of the screen and select **Edit Waypoint**.
  - Select **Name**, enter the name, and select **Done**.
  - Select **Symbol**, and enter a symbol.
  - Select **Depth**, enter the depth, and select **Done**.
  - Select **Water Temp**, enter the water temperature, and select **Done**.
  - Select **Comment**, enter the comment, and select **Done**.

## About the Weather Overlay

The weather overlay superimposes weather and weather-related information on the Navigation chart, the Fishing chart, and the Perspective 3D chart. The Navigation chart and the Fishing chart can show WX radar, cloud cover, lightning, WX buoys, county warnings, and hurricane warnings. The Perspective 3D chart can show WX radar.

Weather overlay settings configured for use on one chart are not applied to another chart. The weather overlay settings for each chart must be configured separately.

**NOTE:** Fishing charts are available if you use a BlueChart® g2 Vision® SD card, a BlueChart g2 SD card, or if your built-in map supports Fishing charts.

### Turning On the Weather Overlay on a Chart

1. From the Home screen, select **Charts**.
2. Select **Navigation Chart** or **Fishing Chart**.
3. Select **Menu**.
4. Select **> Navigation Chart Setup** or **Fishing Chart Setup**.
5. Select **Weather > Weather > On**.

### Showing WX Radar Precipitation Data on a Chart

WX Radar shows very light rain and snow up to strong thunderstorms in varying shades and colors.

Before you can show WX Radar information on a chart, you must turn on the weather overlay ([page 9](#)).

1. From the Home screen, select **Charts**.
2. Select **Navigation Chart** or **Fishing Chart**.
3. Select **Menu**.
4. Select **Navigation Chart Setup** or **Fishing Chart Setup**.
5. Select **Weather > NEXRAD > On**.

### Showing Weather Buoys on a Chart

Before you can show weather buoys on a chart, you must turn on the weather overlay ([page 9](#)).

1. From the Home screen, select **Charts**.
2. Select **Navigation Chart** or **Fishing Chart**.
3. Select **Menu**.
4. Select **Navigation Chart Setup** or **Fishing Chart Setup**.
5. Select **Weather > WX Buoys > On**.

### Showing a Weather Legend on a Chart

Before you can show a weather legend on a chart, you must turn on the weather overlay ([page 9](#)).

1. From the Home screen, select **Charts**.
2. Select **Navigation Chart** or **Fishing Chart**.

3. Select **Menu**.
4. Select **Navigation Chart Setup** or **Fishing Chart Setup**
5. Select **Weather > Legend > On**.

### Showing Cloud Cover Data on the Navigation Chart

Before you can show cloud cover data on the Navigation chart, you must turn on the weather overlay ([page 9](#)).

From the Home screen, select **Charts > Navigation Chart > Menu > Navigation Chart Setup > Weather > Cloud Cover > On**.

### Showing Visibility Data on the Navigation Chart

Visibility is the forecast maximum horizontal distance that can be seen at the surface.

Before you can show visibility data on the Navigation chart, you must turn on the weather overlay ([page 9](#)).

From the Home screen, select **Charts > Navigation Chart > Menu > Navigation Chart Setup > Weather > Visibility > On**.

### Showing Sea Temperature Data on the Fishing Chart

Before you can show sea temperature data on the Fishing chart, you must turn on the weather overlay ([page 9](#)).

From the Home screen, select **Charts > Fishing Chart > Menu > Navigation Chart Setup > Weather > Sea Temp > On**.

### Showing Fish Forecasting Data on the Fishing Chart

Before you can show fish forecasting data on the Fishing chart, you must turn on the weather overlay ([page 9](#)).

You can show areas that contain optimal weather conditions for specific species of fish.

1. From the Home screen, select **Charts > Fishing Chart > Menu > Fishing Chart Setup > Weather > Fish Species > On**.
2. Select a species of fish.
3. Repeat step 2 to show areas with optimal weather conditions for additional species of fish.
4. Select a shaded area to view the fish species that are included in the shaded area.

## Weather Alarms

### Setting Weather Alarms

You can set an alarm to sound when certain weather conditions occur.

1. From the Home screen, select **Configure > Alarms > Weather**.
2. Complete one or more actions:
  - Select **Marine > On**.
  - Select **Tornado > On**.
  - Select **Severe Storm > On**.
  - Select **Flood > On**.
  - Select **Flash Flood > On**.

## Viewing Weather Subscription Information

If you have an active XM WX Radio subscription and are connected to a Garmin GXM 40 XM antenna, you can view information about the weather services you have subscribed to and how many minutes have passed since the data for each service was updated.

From the Home screen, select **Configure** > **System** > **System Information** > **Weather Subscription**.

## XM Satellite Radio

To use XM Satellite Radio features, you must have a Garmin XM Satellite radio receiver connected to your GPSMAP 640 and to the audio input of your boat. You must also have a subscription to XM Satellite Radio. Go to [www.garmin.com/xm](http://www.garmin.com/xm) for more subscription information.

### Using XM Radio

#### Selecting an XM Radio Channel

1. From the Home screen, select **Configure** > **XM Audio**.

**TIP:** To display the XM Audio interface from any chart, select **XM**.

2. Complete an action:
  - Select **Channel Guide** to select a specific XM channel within the selected category, and select a channel.
  - Select **Channel Entry** to enter an XM channel number manually, enter a channel number, and select **Done**.

#### Customizing the Channel Guide

XM Radio channels are grouped in categories. You can select the category of channels that appear in the channel guide.

1. From the Home screen, select **Configure** > **XM Audio** > **Category**.
2. Select a category.

## XM Presets

The XM presets list is a customizable channel category. You can save your favorite channels to the presets list.

### Saving an XM Channel to the Presets List

1. From the Home screen, select **Configure** > **XM Audio**.
2. Complete an action:
  - Select **Channel Guide** to select a specific XM channel within the selected category, and select a channel.
  - Select **Channel Entry** to enter an XM channel number manually.
3. Select **Save Preset**.

### Adjusting XM Radio Volume

1. From the Home screen, select **Configure** > **XM Audio**.
2. Complete an action:
  - Select **Volume** to turn the volume off or on.
  - Adjust the slider bar to control the volume.



## Automotive Mode: Using XM

Your GPSMAP 640 can receive XM radio, XM weather, and XM traffic using an optional XM antenna (such as the Garmin GXM 40 XM antenna). For more information about an XM smart antenna and XM subscriptions, visit [www.garmin.com/xm](http://www.garmin.com/xm).

### Notes:

- XM service is available only in the lower 48 United States and southern Canada.
- You must purchase and activate your XM service before you can use the XM features.

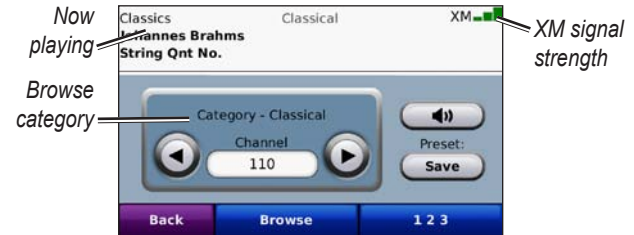
Touch **Tools > XM Services**.

- **XM Radio**—opens the XM tuner.
- **Local Weather**—displays current weather conditions based on your present location. Touch **Forecast** to view a five-day weather forecast for this area.
- **Weather Map**—displays current weather conditions on the map.



## Listening to XM Radio

1. Connect an optional XM antenna to the GPSMAP 640.
2. Touch **Tools > XM Services > XM Radio** to open the XM Radio player.

**NOTE:** To open the XM Radio player directly from the Map page, touch the XM Radio player icon (📻).



### Automotive Mode: XM Radio player

- Touch  to go to the next channel in the browse category.
- Touch  to go to the previous channel in the browse category.
- Touch **Browse** to search a category, such as Recent Channels, Kids, or Urban. Adjacent to each channel is the current program information. Touch a channel to listen to that channel.
- Touch **123** to enter an XM channel. Then touch **Done** to listen to that channel.

- Touch **Save** to save a channel to Presets (maximum of 20).
- Touch **Delete** to remove the current channel from your Presets. To delete more than one channel from Presets, touch **Browse > Presets > Delete**. A list of all your Presets appears. Touch the items you want to delete. Touch **Delete > Yes**.

### Adjusting the Volume

Touch , and then use  and  to adjust the volume.

### Using XM Traffic Information

Your GPSMAP 640 can receive and use traffic information. When a traffic message is received, your GPSMAP 640 displays the incident on the map and can change your route to avoid the traffic incident.

**NOTE:** Garmin is not responsible for the accuracy of the traffic information. The XM antenna receives signals from the XM traffic provider and displays that information on your GPSMAP 640.

**NOTE:** You can only access the traffic information if the GPSMAP 640 is connected to an XM antenna (such as the GXM 40 XM antenna) and you have an XM traffic subscription ([page 13](#)).

### Traffic in Your Area

When you are receiving traffic information, a traffic icon appears in the upper-left corner of the Map page. The traffic icon changes color to indicate the severity of traffic conditions on your route or the road you are currently travelling.

### Severity Color Code

Color	Description	Meaning
Green	Low severity	Traffic is flowing normally.
Yellow	Medium severity	Traffic is slightly congested.
Red	High severity	Traffic is heavily congested or stopped.
Gray	Receiving information	Traffic information is being received.

### Traffic on Your Route

When calculating your route, the GPSMAP 640 device examines the current traffic and automatically optimizes the route for the shortest time. If a severe traffic delay occurs on your route while you are navigating, the device automatically recalculates the route. You might still be routed through traffic if no better alternative routes exist.

If a non-severe traffic delay occurs on your route, the traffic icon shows how much time the delay has added to your route. This time is already included in your estimated arrival time.

### Manually Avoiding Traffic on Your Route:

1. On the Map page, touch the traffic icon.
2. Touch **Traffic On Route**.
3. Touch the arrows to view other traffic delays on your route, if necessary.
4. Touch **Avoid** to avoid the traffic delay.

### Viewing the Traffic Map

The traffic map shows color-coded traffic flow and delays on nearby roads.

1. On the Map page, touch the traffic icon.
2. Touch **Show Traffic Map** to view the traffic incidents on a map.

To return to the normal map from the traffic map, touch the traffic icon, and then touch **Show Normal Map**.

### Viewing Traffic Delays

1. On the Map page, touch the traffic icon.
2. Touch **Traffic Search** to view a list of traffic delays.
3. Touch an item in the list to view the delay on a map and details about the delay. If there is more than one delay, touch the arrows to view the additional delays.

### Adding an XM Subscription

1. To view XM subscription information, open the XM Radio player ([page 13](#)).
2. Set the channel to zero (0).
3. Touch **Radio ID** to open the XM Subscriptions page.
4. Touch **Subscribe**.
5. Follow the on-screen instructions.

**NOTE:** Additional documentation is provided with your Garmin XM antenna.

### XM Traffic

For more information about an XM smart antenna, go to [www.garmin.com/xm](http://www.garmin.com/xm). For subscription information and coverage cities for XM NavTraffic, go to [www.xmradio.com/navtraffic/](http://www.xmradio.com/navtraffic/).

**NOTE:** XM subscriptions are available for North America only.



## Appendix

### Weather Data Warranty

THE WEATHER DATA SOFTWARE PRODUCT IS PROVIDED “AS IS.” ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OF NON-INFRINGEMENT ARE HEREBY EXCLUDED.

### USER SAFETY

If you use XM Services it is your responsibility to exercise prudent discretion and observe all safety measures required by law and your own common sense. You assume the entire risk related to your use of the Services. XM and Garmin assume no responsibility for accidents resulting from or associated with use of the Services. Your Radio Service includes traffic and weather information, and you acknowledge that such information is not for “safety for life”, but is merely supplemental and advisory in nature, and therefore cannot be relied upon as safety-critical in connection with any aircraft, sea craft or automobile usage. This information is provided “as is” and XM and Garmin disclaim any and all warranties, express and implied, with respect thereto or the transmission or reception thereof. XM and Garmin further do not warrant the accuracy, reliability, completeness or timeliness of the traffic and weather information disclosed on the Radio Service. In no event will XM and Garmin, their data suppliers, service providers, marketing/distribution, software or Internet partners or hardware manufacturers be liable to you or to any third party for any direct, indirect, incidental, consequential, special, exemplary or punitive damages or lost profits resulting from use of or interruptions in the transmission or reception of the Services.

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